

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1, 5, 9, 11, 13, 15, and 17 have been amended. Claims 1-17 are pending and under consideration.

I. Rejections under 35 U.S.C. § 101

In the Office Action, at page 2, claims 2-4, 6-8, 10, and 12 were rejected under 35 USC § 101 as being directed to non-statutory subject matter.

Claims 2-4 depend from independent claim 1, include all the features of claim 1, and further limit the apparatus of claim 1. Therefore, for at least the reasons why claim 1 is statutory subject matter, claims 2-4 are also directed to statutory subject matter. Claims 2-4 are tangibly embodied within the apparatus of claim 1, namely the secure module. For similar reasons, dependent claims 6-8, 10, and 12, which depend from independent claims 5, 9, and 11, are also directed to statutory subject matter. Accordingly, withdrawal of these § 101 rejections is respectfully requested.

II. Rejections under 35 U.S.C. § 102

In the Office Action, at pages 3-4, claims 1-17 were rejected under 35 USC § 102(e) as being anticipated by Vos (U.S. Patent No. 4,849,927).

Vos does not discuss or suggest:

- a second storage unit for storing a plurality of distinct encrypted programs into which a program is divided; and

- a secure module capable of performing operations of:

- receiving the program stored in the second storage unit;

- returning the received program to an executable state;

- writing the program, which has been returned to the executable state, in the first storage unit in a sequence for the processor to execute; and

- deleting the program, which has been executed by the processor, from the first storage unit after execution is completed,

- wherein the processor transmits the program stored in the second storage unit to the secure module,

as recited in claim 1. The invention of claim 1 provides for dividing an encrypted program into a plurality of modules and decrypting only the module that is requested to be executed.

Thereafter, the decrypted module is loaded into a memory to be executed and, finally, the decrypted module in the memory is erased from the memory after execution. In other words, the invention of claim 1, at a stage of execution of a program, divides a program into a plurality of part programs and then the part programs are sequentially loaded in a memory one-by-one, wherein each part program is executed after it is changed and expanded in the memory. As such, a program, which is expanded in a memory, is different according to each occasion of execution. Thus, it is difficult for the program to be unfairly read by a third party.

Vos discloses that a program is held in both a data memory and a program memory to be divided. However, Vos does not disclose that a code sequence (KA) is expanded differently according to the respective occasions of execution. In Vos, the KA is a constant and unchanged code sequence and it is made executable after being expanded in the data memory and the program memory. As such, Vos provides that the decrypted program as a whole is in the memory during execution, thereby risking the program to unfair analyzing. Therefore, Vos fails to disclose each of the features of claim 1.

Since Vos does not discuss or suggest all of the features of claim 1, claim 1 patentably distinguishes over Vos. Accordingly, withdrawal of this § 102(e) rejection is respectfully requested.

Claims 2-4 depend either directly or indirectly from claim 1, and include all the features of claim 1, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claims 2-4 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of these § 102(b) rejections is respectfully requested.

Vos does not discuss or suggest:

- a second storage unit for storing a plurality of distinct encrypted programs into which a program is divided and rewrites itself with invalid code just before the program is completed; and
- a secure module capable of performing operations of:
 - receiving the program stored in the second storage unit;
 - returning the received program to an executable state;
 - writing the program, which has been returned to the executable state, in the first storage unit in a sequence for the processor to execute; and
 - deleting the program, which has been executed by the processor, from the first storage unit after execution is completed,
- wherein the processor transmits the program stored in the second

storage unit to the secure module,
as recited in claim 5, so that claim 5 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claims 6-8 depend either directly or indirectly from claim 5, and include all the features of claim 5, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claims 6-8 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of these § 102(e) rejections is respectfully requested.

Vos does not discuss or suggest:

- a second storage unit for storing a plurality of distinct encrypted programs; and

- a secure module capable of performing operations of:

- receiving a program stored in the second storage unit;

- dividing the received program into a plurality of programs;

- returning each divided program to an executable state;

- writing the program, which has been returned to the executable state, in the first storage unit in a sequence for the processor to execute; and

- deleting the program, which has been executed by the processor, from the first storage unit after execution is completed,

- wherein the processor transmits the program stored in the second storage unit to the secure module,

as recited in claim 9, so that claim 9 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claim 10 depends directly from claim 9, and includes all the features of claim 9, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claim 10 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Vos does not discuss or suggest:

- a second storage unit for storing a plurality of distinct encrypted programs; and

- a secure module capable of performing operations of:

- receiving a program stored in the second storage unit;

- dividing the received program into a plurality of programs, and making each of the plurality of divided programs to be a program

which rewrites itself with an invalid code just before the program is completed;

returning each divided program to an executable state; and

writing the program, which has been returned to the executable state, in the first storage unit in a sequence for the processor to execute,

wherein the processor transmits the program stored in the second storage unit to the secure module,

as recited in claim 11, so that claim 11 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claim 12 depends directly from claim 11, and includes all the features of claim 11, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claim 12 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Vos does not discuss or suggest:

a first storage unit where a plurality of distinct programs, into which a program has been divided, are kept resident before execution;

a processor for executing the programs written in the first storage unit;

a second storage unit for storing an encrypted call program which calls divided programs as an execution program; and

a secure module capable of performing operations of:

receiving the call program stored in the second storage unit;

returning the received call program to an executable state;

writing the call program, which has been returned to a corresponding executable state, in the first storage unit in a sequence for the processor to execute a divided program; and

deleting the call program, which has been executed by the processor, from the first storage unit after execution is completed,

wherein the second storage unit transmits the call program stored in the second storage unit to the secure module,

as recited in claim 13, so that claim 13 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claim 14 depends directly from claim 13, and includes all the features of claim 13, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claim 14 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Vos does not discuss or suggest:

- a first storage unit where a plurality of distinct programs, into which a program has been divided, are kept resident before execution;

- a processor for executing the programs written in the first storage unit;

- a second storage unit for storing an encrypted call program, which calls divided programs just before the program is completed as each execution program which rewrites itself with invalid code; and

- a secure module capable of performing operations of:

 - receiving the call program stored in the second storage unit;

 - returning the received call program to an executable state; and

 - writing the call program, which has been returned to the corresponding executable state, in the first storage unit in a sequence for the processor to execute divided programs;

 - wherein the second storage unit transmits the call program stored in the second storage unit to the secure module,

as recited in claim 15, so that claim 15 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claim 16 depends directly from claim 15, and includes all the features of claim 15, plus additional features that are not discussed or suggested by the reference relied upon. Therefore, claim 16 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Vos does not discuss or suggest:

- storing a plurality of distinct encrypted programs of a computer program which has been divided into a second storage unit;

- transmitting the computer program stored in the second storage unit,

- restoring the transmitted computer program to an executable state;

- writing the restored computer program into a first storage unit;

- executing the computer program written in the first storage unit; and

- deleting the computer program, which has been executed by the processor, from the first storage unit after execution is completed,

as recited in claim 17, so that claim 17 patentably distinguishes over Vos. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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